Lower Columbia Salmon Recovery Region Plan

CHRIS DRIVDAHL

GOAL

Washington lower Columbia salmon, steelhead, and bull trout are recovered to healthy, harvestable levels that will sustain productive sport, commercial, and tribal fisheries through the restoration and protection of the ecosystems upon which they depend and the implementation of supportive hatchery and harvest practices; and the health of other native fish and wildlife species in the lower Columbia will be enhanced and sustained through the protection of the ecosystems upon which they depend, the control of non-native species, and the restoration of balanced predator/prey relationships.

"The Lower Columbia Fish Recovery Board is committed to finding solutions that restore fish and provide for the needs of the citizens of the region."

LOWER COLUMBIA FISH RECOVERY BOARD

Plan Timeframe
25 years

Estimated Cost
Under development

Actions Identified to Implement Plan
More than 650

Status
All H interim recovery plan for Washington adopted by NMFS 2/2006

Human Population
544,500

Counties
Clark, Cowlitz, Lewis, Skamania, and Wahkiakum, and portions of Pacific and Klickitat

Treaty Tribes
No Treaty Tribe Reservations are present. Cowlitz Tribe is federally recognized

Listed Fish
Chinook, chum, coho, steelhead and bull trout[1]

Regional Recovery Organization
Lower Columbia Fish Recovery Board

MAJOR FACTORS LIMITING RECOVERY

- Degraded floodplain and channel structure
- Stream flows in tributaries altered
- Impaired passage in tributaries
- Excessive sediment and temperatures in tributaries
- Altered channel morphology
- Degraded riparian habitat
- Hatchery impacts
- Harvest impacts
- Predator harassment of spawners

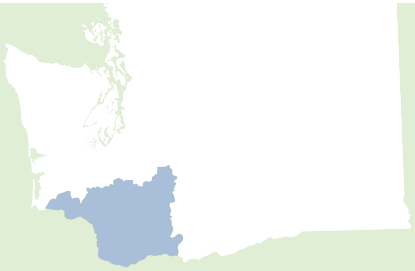
KEY ACTIONS RECOMMENDED TO RECOVER FISH

January 2006 to June 2007

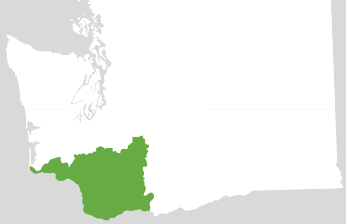
- Update plan to address coho listing
- Develop and initiate research, monitoring, and adaptive management
- Implement regulations and programs to protect existing habitat
- Ensure harvest supports recovery
- Eliminate adverse impacts of hatcheries on wild fish
- Complete regional barrier inventory and prioritization
- Restore key reaches for primary and contributing populations
- Promote public participation in recovery

Long Term

- Establish regional priorities for habitat
- Correct fish passage to high quality habitat
- Rebuild listed populations with hatchery supplementation
- Implement harvest measures that ensure protection of listed fish
- Manage streamflow and water rights in priority reaches
- Monitor progress, effectiveness, and trends
- Promote public participation in recovery



[1] USFWS previously published a bull trout recovery plan (2002). The status of bull trout is currently under review and is expected to be complete by early 2006. At that time, USFWS will work with the Regional Board, WDFW, GSRO to incorporate elements of the State's plan into the federal plan.



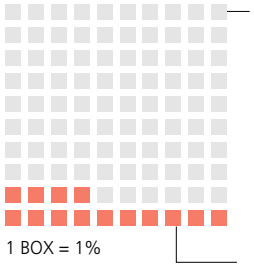
Lower Columbia Salmon Recovery Region Chum

Lower Columbia River Chum Evolutionary Significant Unit (ESU) and Context Area

- ESU in Washington
- Major Population Group (MPG)
- ESU in Oregon

Chum Spawner Abundance

Population	Present	Goal
Grays/Chinook	960	6,000
Elochoman/Skamokawa	<150	1,100
Mill/Abernathy/Germany	<150	1,100
Cowlitz	<150	600
Kalama	<150	150
Lewis	<150	1,100
Salmon	<150	75
Washougal	<150	5,200
Lower Gorge	542	2,800
Upper Gorge	<100	600
Total	<2,650	18,725



Total Spawner Abundance Goal 18,725
This is the number of adults needed on the spawning grounds to achieve recovery. Wherever possible it is expressed in natural spawner numbers.

Total Spawner Abundance Present
<2,650 (14.5% of Goal)
This is expressed as an average over a specified period of time.

Chum Productivity

Population	Present	Goal
Grays/Chinook	2.3	6.4
Elochoman/Skamokawa	1.9	2.7
Mill/Abernathy/Germany	1.8	2.7
Cowlitz	1.7	2.2
Kalama	1.9	1.9
Lewis	2.2	2.7
Salmon	<1.0	<1.0
Washougal	1.5	9.6
Lower Gorge	2.6	8.2
Upper Gorge	<1.0	1.9

Productivity:
Population growth rate. This is how many fish return for each fish that spawns. A population must have productivity greater than 1 to increase over time.

CHUM
Oncorhynchus keta

Live 3-5 years; utilize lower reaches, slow-moving water, side channels of mainstem or tributaries; spawn mid fall to early spring; spend little time in freshwater after emerging from redds, but up to 4 months in estuaries

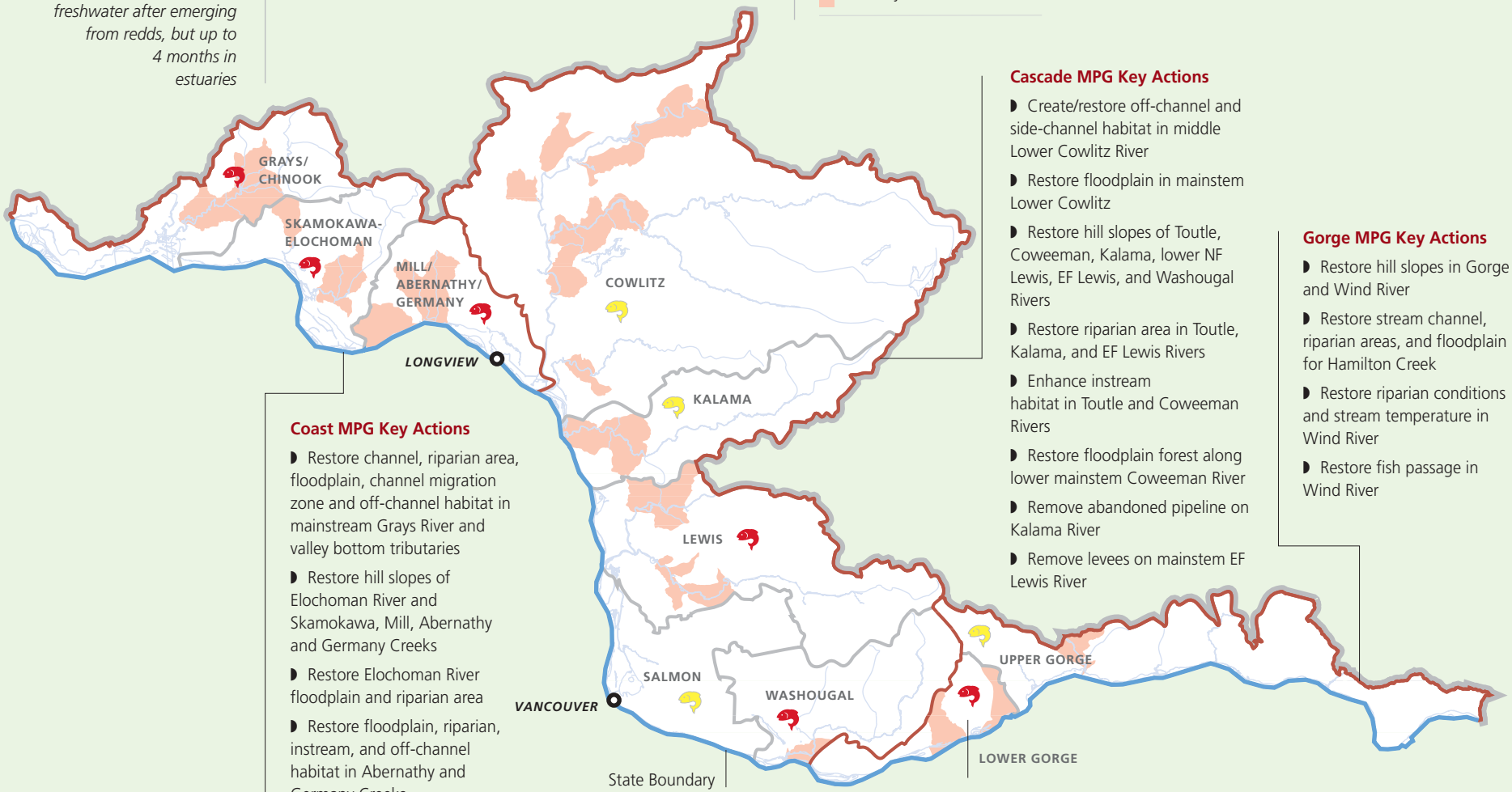
Chum
Lower Columbia Salmon Recovery Region

Lower Columbia River Chum

- ESU in Washington
- Major Population Group (MPG)
- Population
- Primary Population
- Contributing Population
- Priority Habitat

LOWER COLUMBIA FISH RECOVERY BOARD

Woods Landing Chum Spawning Area



Coast MPG Key Actions

- Restore channel, riparian area, floodplain, channel migration zone and off-channel habitat in mainstream Grays River and valley bottom tributaries
- Restore hill slopes of Elochoman River and Skamokawa, Mill, Abernathy and Germany Creeks
- Restore Elochoman River floodplain and riparian area
- Restore floodplain, riparian, instream, and off-channel habitat in Abernathy and Germany Creeks

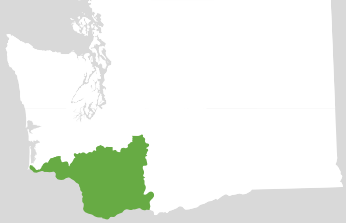
Cascade MPG Key Actions

- Create/restore off-channel and side-channel habitat in middle Lower Cowlitz River
- Restore floodplain in mainstem Lower Cowlitz
- Restore hill slopes of Toutle, Coweeman, Kalama, lower NF Lewis, EF Lewis, and Washougal Rivers
- Restore riparian area in Toutle, Kalama, and EF Lewis Rivers
- Enhance instream habitat in Toutle and Coweeman Rivers
- Restore floodplain forest along lower mainstem Coweeman River
- Remove abandoned pipeline on Kalama River
- Remove levees on mainstem EF Lewis River

Gorge MPG Key Actions

- Restore hill slopes in Gorge and Wind River
- Restore stream channel, riparian areas, and floodplain for Hamilton Creek
- Restore riparian conditions and stream temperature in Wind River
- Restore fish passage in Wind River

DATA SOURCE: NOAA FISHERIES AND LOWER COLUMBIA FISH RECOVERY BOARD



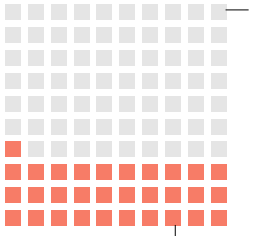
Lower Columbia Salmon Recovery Region Steelhead

Lower Columbia River Steelhead Evolutionary Significant Unit (ESU) and Context Area

- ESU in Washington
- Not in ESU, but in Plan
- Major Population Group (MPG)
- ESU in Oregon

Steelhead Spawner Abundance

Population	Present	Goal
Grays/Chinook	150	600
Elochoman/Skamokawa	150	400
Mill/Abernathy/Germany	150	600
Lower Cowlitz	Unknown	300
Upper Cowlitz	0	300
Cispus	0	300
Tilton	0	150
SF Toutle	453	1,600
NF Toutle	176	700
Coweeman	228	800
Kalama	541	650
Kalama (Summer)	291	700
NF Lewis	Unknown	300
NF Lewis (Summer)	Unknown	75
EF Lewis	77	600
EF Lewis (Summer)	463	200
Salmon	Unknown	300
Washougal	421	500
Washougal (Summer)	136	700
Lower Gorge	Unknown	200
Upper Gorge	Unknown	50
Upper Gorge (Summer)	391	1,600
Total	3,627	11,625



Total Spawner Abundance Goal 11,625
This is the number of adults needed on the spawning grounds to achieve recovery. Wherever possible it is expressed in natural spawner numbers.

Total Spawner Abundance Present
3,627 (31%)
This is expressed as an average over a specified period of time.

Steelhead Productivity

Population	Present	Goal
Grays/Chinook	3.6	4.5
Elochoman/Skamokawa	3.4	3.8
Mill/Abernathy/Germany	4.1	5.2
Lower Cowlitz	1.7	1.8
Upper Cowlitz	<1.0	2.0
Cispus	<1.0	2.0
Tilton	<1.0	1.0
SF Toutle	2.9	8.5
NF Toutle	2.6	2.8
Coweeman	2.8	4.0
Kalama (Winter)	3.3	7.0
Kalama (Summer)	3.7	4.1
NF Lewis (Winter)	1.1	1.1
NF Lewis (Summer)	Not Determined (ND)	ND
EF Lewis	2.1	2.7
EF Lewis (Summer)	1.4	1.4
Salmon	1.7	1.7
Washougal (Winter)	2.2	2.2
Washougal (Summer)	2.9	5.1
Lower Gorge (Winter)	11.7	17.7
Upper Gorge (Winter)	2.6	2.6
Upper Gorge (Summer)	2.7	4.8

Productivity:
Population growth rate. This is how many fish return for each fish that spawns. A population must have productivity greater than 1 to increase over time.

STEELHEAD
Oncorhynchus mykiss

Live 4-7+ years; typically spawn mid winter to late spring in rivers and tributaries in upper watersheds; spend 1-3 years in freshwater river and tributary main channels.

Steelhead
Lower Columbia Salmon Recovery Region

LOWER COLUMBIA FISH RECOVERY BOARD

Steelhead Over Wintering Pond

Lower Columbia Steelhead

- ESU in Washington
- Major Population Group (MPG)
- Population
- Primary Population
- Contributing Population
- Priority Habitat
- Not in ESU, but in Plan

Coast MPG Key Actions

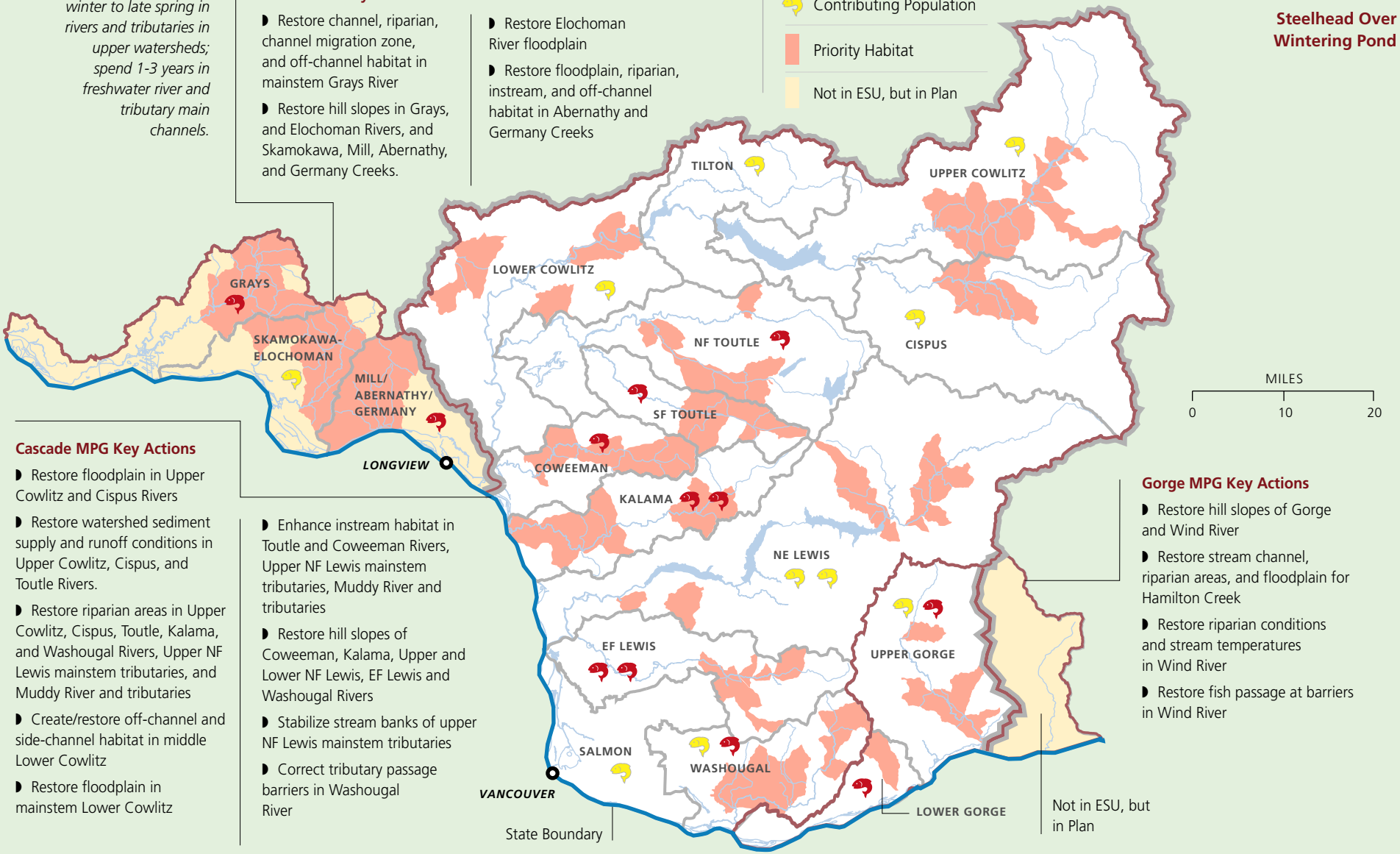
- Restore channel, riparian, channel migration zone, and off-channel habitat in mainstem Grays River
- Restore hill slopes in Grays, and Elochoman Rivers, and Skamokawa, Mill, Abernathy, and Germany Creeks.
- Restore Elochoman River floodplain
- Restore floodplain, riparian, instream, and off-channel habitat in Abernathy and Germany Creeks

Cascade MPG Key Actions

- Restore floodplain in Upper Cowlitz and Cispus Rivers
- Restore watershed sediment supply and runoff conditions in Upper Cowlitz, Cispus, and Toutle Rivers.
- Restore riparian areas in Upper Cowlitz, Cispus, Toutle, Kalama, and Washougal Rivers, Upper NF Lewis mainstem tributaries, and Muddy River and tributaries
- Create/restore off-channel and side-channel habitat in middle Lower Cowlitz
- Restore floodplain in mainstem Lower Cowlitz
- Enhance instream habitat in Toutle and Coweeman Rivers, Upper NF Lewis mainstem tributaries, Muddy River and tributaries
- Restore hill slopes of Coweeman, Kalama, Upper and Lower NF Lewis, EF Lewis and Washougal Rivers
- Stabilize stream banks of upper NF Lewis mainstem tributaries
- Correct tributary passage barriers in Washougal River

Gorge MPG Key Actions

- Restore hill slopes of Gorge and Wind River
- Restore stream channel, riparian areas, and floodplain for Hamilton Creek
- Restore riparian conditions and stream temperatures in Wind River
- Restore fish passage at barriers in Wind River



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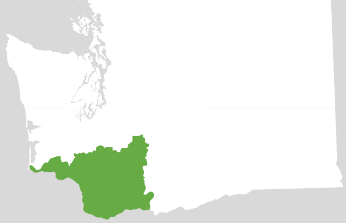


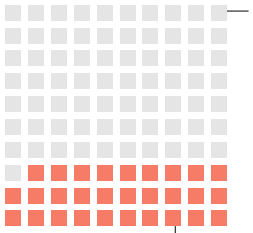
Lower Columbia Salmon Recovery Region Chinook

Lower Columbia River Chinook Evolutionarily Significant Unit (ESU) and Context Area

- ESU in Washington
- Major Population Group (MPG)
- ESU in Oregon
- Not in Plan, but in MPG and ESU

Chinook Spawner Abundance

Population	Present	Goal
Grays/Chinook	73	1,400
Elochoman/Skamokawa	140	1,400
Mill/Abernathy/Germany	250	1,100
Lower Cowlitz	602	2,300
Upper Cowlitz (Fall)	0	0
Upper Cowlitz (Spring)	365	5,400
Cispus	150	1,800
Tilton	150	150
SF Toutle	150	800
NF Toutle	1,000	1,000
Coweeman	425	3,600
Kalama (Fall)	1,192	1,300
Kalama (Spring)	105	1,400
NF Lewis (Late Fall)	6,493	11,600
NF Lewis (Spring)	300	2,200
Lewis/Salmon	235	2,900
Washougal	1,225	5,800
Lower Gorge	Unknown	700
Upper Gorge	138	100
Total	12,993	44,950



Total Spawner Abundance Goal 44,950
This is the number of adults needed on the spawning grounds to achieve recovery. Wherever possible it is expressed in natural spawner numbers.

Total Spawner Abundance Present
12,993 (29% of Goal)
This is expressed as an average over a specified period of time.

Chinook Productivity

Population	Present	Goal
Grays/Chinook	1.4	1.6
Elochoman/Skamokawa	1.3	1.4
Mill/Abernathy/Germany	1.4	1.5
Lower Cowlitz	1.4	1.5
Upper Cowlitz (Fall)	<1.0	<1.0
Upper Cowlitz (Spring)	Unknown	Not Determined
Cispus	Unknown	Not Determined
Tilton	Unknown	Not Determined
SF Toutle	Unknown	Not Determined
NF Toutle	1.3	1.3
Coweeman	1.7	7.0
Kalama (Fall)	1.4	1.5
Kalama (Spring)	Unknown	Not Determined
NF Lewis (Late Fall)	2.6	11.4
NF Lewis (Spring)	Unknown	Not Determined
Lewis/Salmon	1.5	5.9
Washougal	1.5	1.6
Lower Gorge	Unknown	Not Determined
Upper Gorge	Unknown	Not Determined

Productivity:
Population growth rate. This is how many fish return for each fish that spawns. A population must have productivity greater than 1 to increase over time.

CHINOOK
Oncorhynchus tshawytscha

Live 3-6 years; fall populations occur in most tributaries and spawn early fall to mid winter; spring populations spawn in upstream tributaries of large sub-basins in late summer to early fall

Chinook
Lower Columbia Salmon Recovery Region

LOWER COLUMBIA FISH RECOVERY BOARD

Lower Columbia River Chinook

- ESU in Washington
- Major Population Group (MPG)
- Population
- Primary Population
- Contributing Population
- Priority Habitat
- Not in Plan, but in MPG and ESU

Coast MPG Key Actions

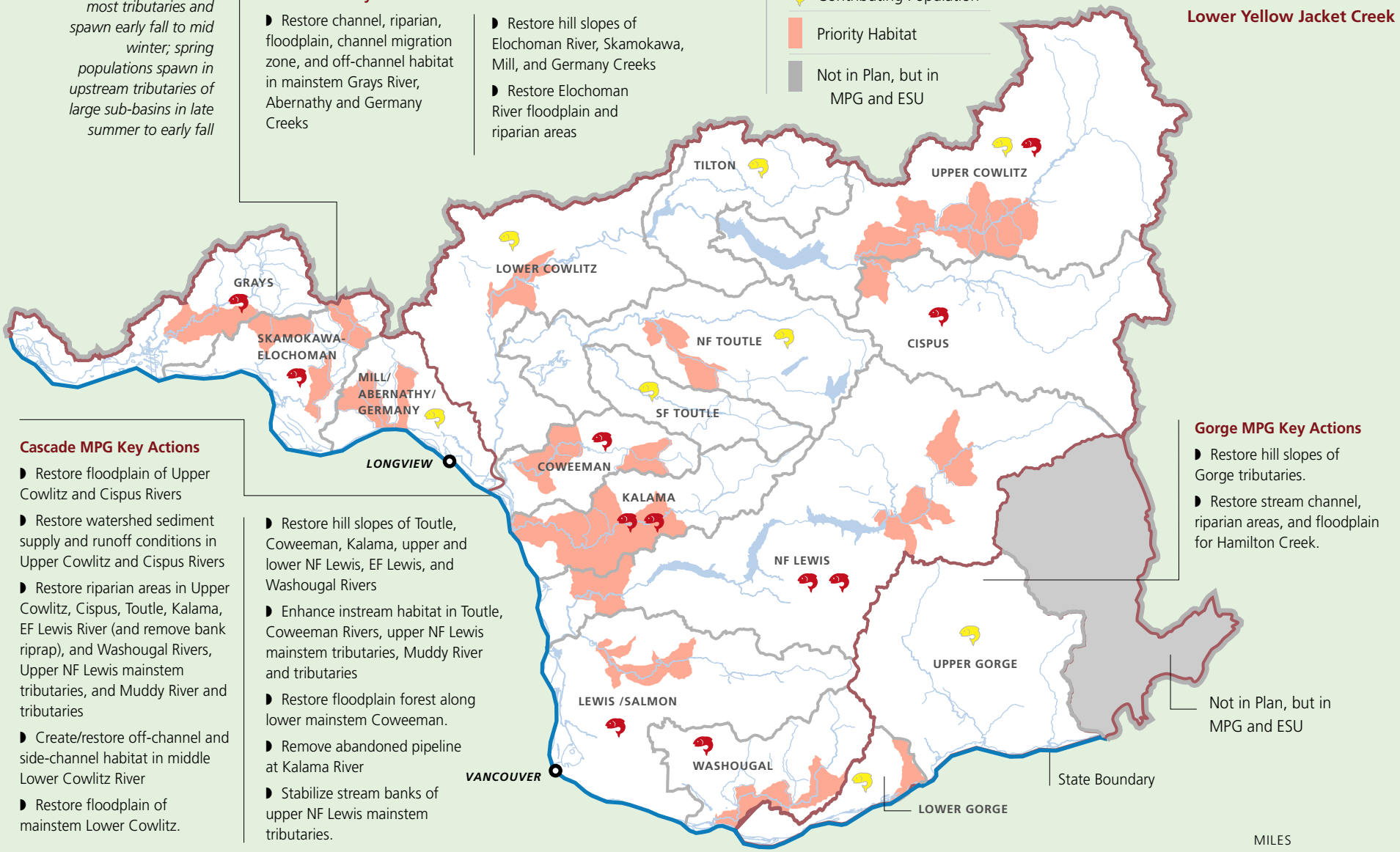
- Restore channel, riparian, floodplain, channel migration zone, and off-channel habitat in mainstem Grays River, Abernathy and Germany Creeks
- Restore hill slopes of Elochoman River, Skamokawa, Mill, and Germany Creeks
- Restore Elochoman River floodplain and riparian areas

Cascade MPG Key Actions

- Restore floodplain of Upper Cowlitz and Cispus Rivers
- Restore watershed sediment supply and runoff conditions in Upper Cowlitz and Cispus Rivers
- Restore riparian areas in Upper Cowlitz, Cispus, Toutle, Kalama, EF Lewis River (and remove bank riprap), and Washougal Rivers, Upper NF Lewis mainstem tributaries, and Muddy River and tributaries
- Create/restore off-channel and side-channel habitat in middle Lower Cowlitz River
- Restore floodplain of mainstem Lower Cowlitz.
- Restore hill slopes of Toutle, Coweeman, Kalama, upper and lower NF Lewis, EF Lewis, and Washougal Rivers
- Enhance instream habitat in Toutle, Coweeman Rivers, upper NF Lewis mainstem tributaries, Muddy River and tributaries
- Restore floodplain forest along lower mainstem Coweeman.
- Remove abandoned pipeline at Kalama River
- Stabilize stream banks of upper NF Lewis mainstem tributaries.

Gorge MPG Key Actions

- Restore hill slopes of Gorge tributaries.
- Restore stream channel, riparian areas, and floodplain for Hamilton Creek.



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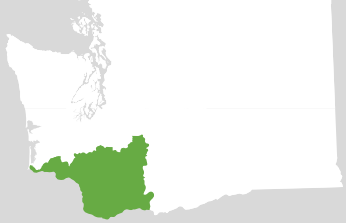
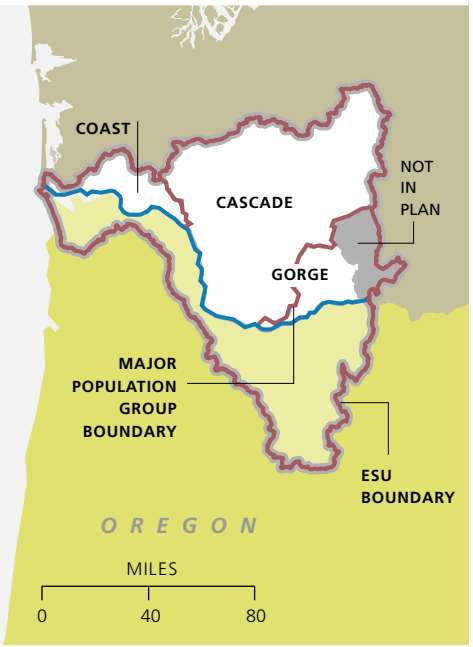


Lower Columbia Salmon Recovery Region Coho



Lower Columbia River Coho Evolutionarily Significant Unit (ESU) and Context Area

- ESU in Washington
- Major Population Group (MPG)
- ESU in Oregon
- Not in Plan, but in MPG and ESU

Coho Spawner Abundance[1]

Population	Present	Goal
Grays/Chinook	Unknown	600
Elochoman/Skamokawa	Unknown	600
Mill/Abernathy/Germany	Unknown	300
Lower Cowlitz	Unknown	600
Upper Cowlitz	Unknown	300
Cispus	Unknown	300
Tilton	Unknown	150
SF Toutle	Unknown	600
NF Toutle	Unknown	600
Coweeman	Unknown	600
Kalama	Unknown	300
NF Lewis	Unknown	600
EF Lewis	Unknown	600
Salmon	Unknown	75
Washougal	Unknown	300
Lower Gorge	Unknown	600
Upper Gorge	Unknown	600
Total	Unknown	7,725

1 BOX = 1%

Total Spawner Abundance Goal
7,725

This is the number of adults needed on the spawning grounds to achieve recovery. Wherever possible it is expressed in natural spawner numbers.

Total Spawner Abundance Present
Unknown

[1] Lower Columbia Fish Recovery Board is working to supplement this information. Coho were listed after the plan was submitted to federal agencies.

Coho Productivity[1]

Population	Present	Goal
Grays/Chinook	Unknown	Not Determined
Elochoman/Skamokawa	Unknown	Not Determined
Mill/Abernathy/Germany	Unknown	Not Determined
Lower Cowlitz	Unknown	Not Determined
Upper Cowlitz	Unknown	Not Determined
Cispus	Unknown	Not Determined
Tilton	Unknown	Not Determined
SF Toutle	Unknown	Not Determined
NF Toutle	Unknown	Not Determined
Coweeman	Unknown	Not Determined
Kalama	Unknown	Not Determined
NF Lewis	Unknown	Not Determined
EF Lewis	Unknown	Not Determined
Salmon	Unknown	Not Determined
Washougal	Unknown	Not Determined
Lower Gorge	Unknown	Not Determined
Upper Gorge	Unknown	Not Determined

Productivity:
Population growth rate. This is how many fish return for each fish that spawns. A population must have productivity greater than 1 to increase over time.

COHO
Oncorhynchus kisutch

Live 2-4 years; typically spawn mid-fall to mid winter in smaller streams; spend at least one winter in freshwater; associated with slow current, pool, and side channel habitat in rivers

Coho
Lower Columbia Salmon Recovery Region

Lower Columbia River Coho

- ESU in Washington
- Major Population Group (MPG)
- Population
- Primary Population
- Contributing Population
- Priority Habitat
- Not in Plan, but in MPG and ESU

LOWER COLUMBIA FISH RECOVERY BOARD

Wildhorse Creek Restoration

Coast MPG Key Actions

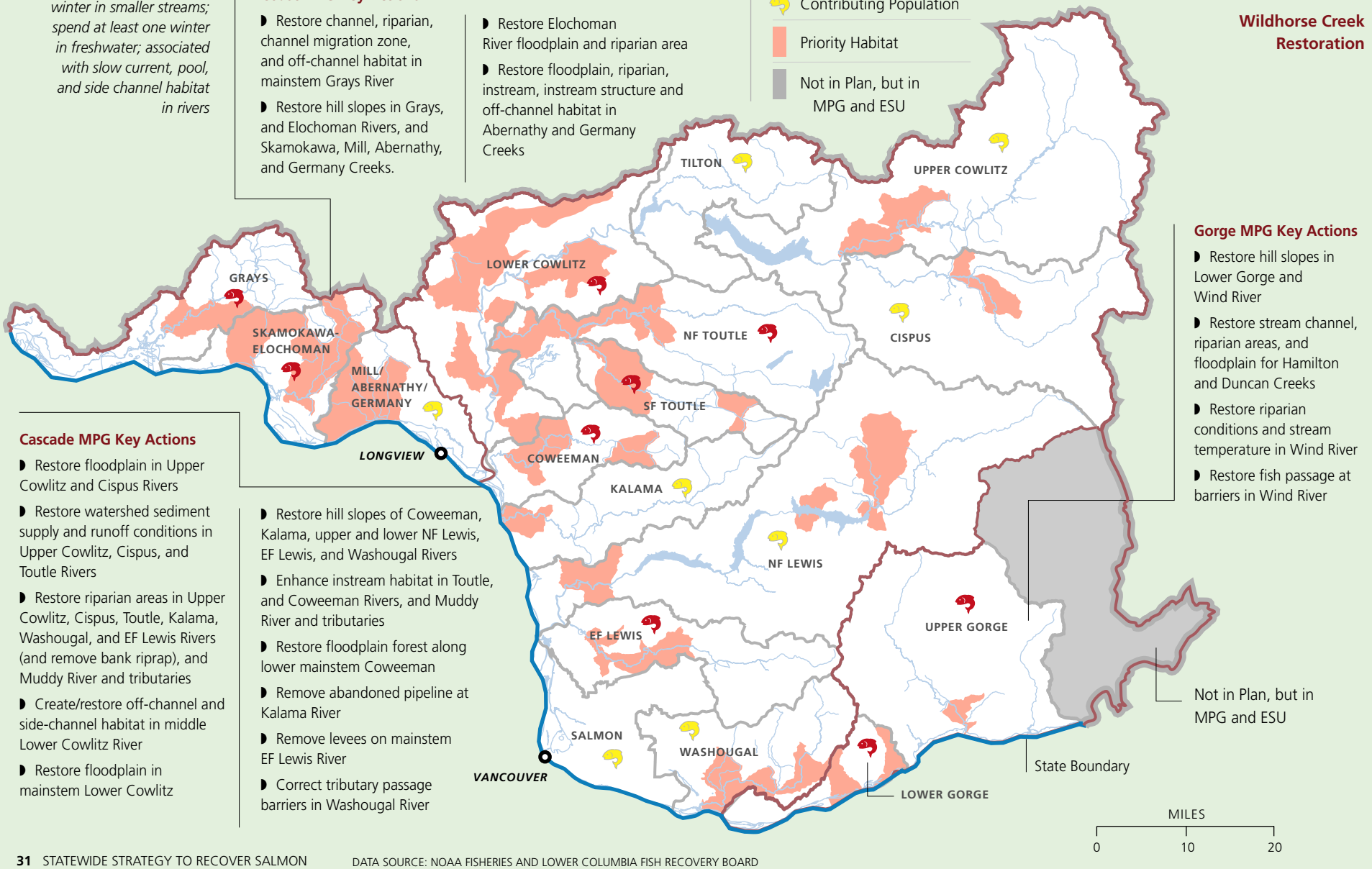
- Restore channel, riparian, channel migration zone, and off-channel habitat in mainstem Grays River
- Restore hill slopes in Grays, and Elochoman Rivers, and Skamokawa, Mill, Abernathy, and Germany Creeks.
- Restore Elochoman River floodplain and riparian area
- Restore floodplain, riparian, instream, instream structure and off-channel habitat in Abernathy and Germany Creeks

Cascade MPG Key Actions

- Restore floodplain in Upper Cowlitz and Cispus Rivers
- Restore watershed sediment supply and runoff conditions in Upper Cowlitz, Cispus, and Toutle Rivers
- Restore riparian areas in Upper Cowlitz, Cispus, Toutle, Kalama, Washougal, and EF Lewis Rivers (and remove bank riprap), and Muddy River and tributaries
- Create/restore off-channel and side-channel habitat in middle Lower Cowlitz River
- Restore floodplain in mainstem Lower Cowlitz
- Restore hill slopes of Coweeman, Kalama, upper and lower NF Lewis, EF Lewis, and Washougal Rivers
- Enhance instream habitat in Toutle, and Coweeman Rivers, and Muddy River and tributaries
- Restore floodplain forest along lower mainstem Coweeman
- Remove abandoned pipeline at Kalama River
- Remove levees on mainstem EF Lewis River
- Correct tributary passage barriers in Washougal River

Gorge MPG Key Actions

- Restore hill slopes in Lower Gorge and Wind River
- Restore stream channel, riparian areas, and floodplain for Hamilton and Duncan Creeks
- Restore riparian conditions and stream temperature in Wind River
- Restore fish passage at barriers in Wind River



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